

93. The method of claim 92 wherein the vacuum lock chamber and ion source chamber are in fluid communication and are maintained under a vacuum controlled environment during the dissociating, transporting, and associating of the first and second sample supports.

94. The method of claim 92 further comprising the step of:
recording in a computer mass data corresponding to at least one of the plurality of samples struck with a laser pulse.

REMARKS

Claim 1 is pending. Claims 2-74 were previously canceled without prejudice. Applicant cancels without prejudice claim 1. Applicant introduces new claims 75-94. Consequently, claims 75-94 will be pending for examination after entry of this Amendment. Applicant submits that no new matter is introduced by the new claims and that claims 75-94 are in condition for allowance.

Support for New Claims

Support for new independent claim 75 is found throughout the disclosure of the issued patent. In particular, support for new claim 75 is found at least at column 4, line 12; column 6, lines 53-57; column 8, lines 21-28 and 40-43; column 9, lines 39-45, 53-58 and 61-64; column 10, lines 7-12; and in Figures 6, 7 and 9.

Support for new independent claim 90 is found throughout the disclosure of the issued patent. In particular, support for new claim 90 is found at least at column 3, lines 14-17 and 22-34; column 4, lines 12 and 35-38; column 6, lines 44-64; column 7, lines 11-22 and 37-55; column 8, lines 1-5 and 53-66; column 9, lines 53-58 and 61-64; column 10, lines 7-12; and in Figures 4-9.

Support for new independent claim 92 is found throughout the disclosure of the issued patent. In particular, support for new claim 92 is found at least in the above cites for new claim 75, and at column 3, lines 22-34; column 4, lines 9-13 and 35-38; column 6, lines 52-65; column 7, lines 11-15 and 37-41; column 8, lines 53-64; column 9, lines 3-13 and 30-50; column 9, line 30 to column 10, line 12; and in Figures 4-9.

Applicant introduces new dependent claims 76-89 which depend directly or indirectly from new independent claim 75. Support for these new dependent claims is found throughout the disclosure of the issued patent. In particular, support for these new dependent claims is found at least at column 1, lines 59-62; column 3, lines 11-34; column 3, line 59 to column 4, line 27; column 4, lines 35-38; columns 5, lines 29-39; column 5, line 61 to column 6, line 4; column 6, lines 19-26 and 44-64; column 7, lines 5-7, 37-41 and 50-56; column 8, lines 1-5, 16-28, 40-43 and 53-58; column 9, lines 3-19 and 29-64; column 10, lines 3-12; and in Figures 6, 7 and 9.

Applicant introduces new dependent claim 91 which depends from claim 90. Support for this new dependent claim is found throughout the disclosure of the issued patent. In particular, support for this new dependent claim is found at least at column 4, lines 35-38; column 9, lines 53-57 and 61-64; and in Figure 9.

Applicant introduces new dependent claims 93 and 94 which depend directly from claim 92. Support for these new dependent claims is found throughout the disclosure of the issued patent. In particular, support for these new dependent claims is found at least at column 1, line 62 to column 2, line 1; column 12, line 48 to column 13, line 12; column 7, lines 49-55; and column 8, lines 21-28.

Remarks with Respect to Previously Applied References

Applicant submits that new claims 75-94 are patentable over all previously cited prior art and are in condition for allowance. Nevertheless, Applicant provides the following remarks with respect to references applied in prior Office actions in connection with the parent reissue application, i.e., U.S. Serial No. 09/038,324.

New independent claims 75 and 90 generally recite a system for obtaining mass data which includes a mass spectrometer having an ion source chamber, and a vacuum lock chamber connected to the ion source chamber. The ion source chamber includes a sample receiving stage adapted to support a sample support, and a mechanism to move the sample receiving stage. In claim 75, the mechanism moves the sample receiving stage in an x direction and a y direction perpendicular to the x direction, where the x and y directions lie substantially in the same plane. The claimed system further includes a sample support holder adapted to support more than one

sample support, thereby permitting multiple sample supports to be associated with the vacuum lock chamber.

The claimed system also includes a sample support transfer mechanism. The sample transfer mechanism shuttles sample supports between the vacuum lock chamber and the ion source chamber. The transfer mechanism is adapted to exchange a sample support in the ion source chamber with a different sample support associated with the sample support holder. The exchange of sample supports occurs without having to isolate the vacuum chamber from the ion source chamber. That is, during the sample support exchange, the vacuum chamber and ion source chamber are in fluid communication and both are maintained under a vacuum controlled environment.

Applicant submits that none of the references applied in prior Office actions of the parent reissue application teaches or suggests a transfer mechanism that exchanges sample supports without isolating a vacuum lock chamber from an ion source chamber. For example, in references where sample support transfer between a vacuum lock chamber and an ion source chamber is taught or suggested, a valve, such as a sluice-lock or ball valve, typically isolates the chambers from each other while one sample support is exchanged for another.

More specifically, in Klaus et al., "A New UHV-Specimen Preparation Chamber for Solid Surface Analysis with Sample Transport Mechanism Over a UHV-Sluice Lock to a SIMS-Apparatus," Proc. 7th Intern. Vac. Congr. & 3rd Intern. Conf. Solid Surfaces, Vienna (1977), due to the design of the apparatus, it appears that the specimen carrier is removed from the ion source chamber into the preparation chamber and the sluice lock is closed so that another specimen carrier can be introduced into the preparation chamber while it is at atmospheric pressure. That is, it appears that the preparation chamber does not permit a "new" specimen carrier to be ready and waiting to be exchanged with the specimen carrier in the ion source chamber so that fluid communication and a vacuum controlled environment are maintained in the preparation chamber and the ion source chamber during the exchange.

In addition, U.S. Patent No. 5,382,793 to Weinberger et al. states that "[w]hen no tip is inserted through canal 170, ball valve 172 isolates sample chamber 28 from vacuum chamber 22" ('793 patent, col. 9, lns. 12-14). Accordingly, it appears that when a tip (sample support) is withdrawn from the ion source chamber, the ball valve is closed, isolating the vacuum lock

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